MUKHADOV, G. M., Cand of Vet Sci —(diss) "On the participation of the vegetative nervous system in the pathogenesis of tripanosomiasis su-auru." Ashkhabad, 1957, 26 pp (Turkmen Agricultural Institute im M. I. Kalinin, Chair of Pathological Physiology and Pharmacology), 150 copies (KL, 29-57, 92)

MUKHADZE, G.M.

Simplified formula for calculating massive retaining walls.
Trudy Inst. stroi. dela AN Gruz. SSR 3:11-24 '51. (MLRA 9:10)

(Retaining walls)

MUKHADZE, G.M.

Construction of influence lines of deflection in girder joints with the aid of diagrams of influence of support reactions. Trudy inst.stroi.dela AN Gruz.SSR 5:3-9 '55. (MLRA 9:8)
(Girders)

SOV/124-58-7-8079

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 111 (USSR)

AUTHOR: Mukhadze, G. M.

TITLE: Using the Method of the Foci of the Moments (Fixed Points) to Calculate Pin-jointed Frames and Continuous Beams (Raschet ram i nerazreznykh balok s promezhutochnymi sharnirami metodom momentnykh fokusov)

PERIODICAL: Tr. in-ta stroit. dela. AN GruzSSR, 1957, Vol 6, pp 15-29

ABSTRACT: The author presents a variation of the usual formulae associated with the method of the foci of the moments (fixed points) for calculating continuous beams and fixed frames when the rods have intermediate hinges.

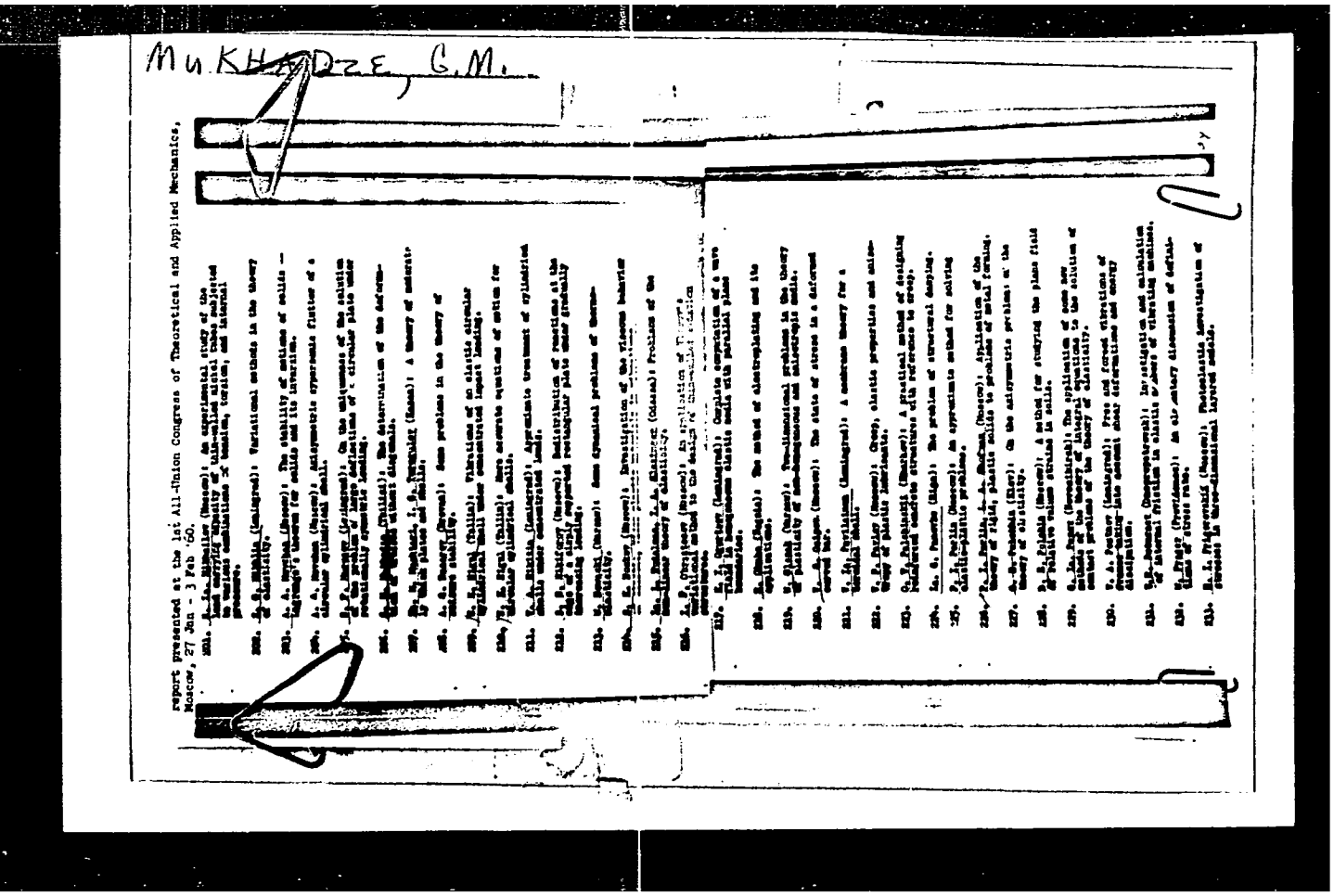
N. K. Snitko

Card 1/1

1. Beams--Moments 2. Structures--Moments 3. Mathematics --Applications

MUKHADZE, G.M.

Simplifying the method of momental focuses to be used in designing continuous beams. Trudy Inst.stroi.dela AN Gruz.SSR 7:3-25 '59. (MIRA 13:5)
(Girders)



MUKHADZE, G.M.

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

MUKHADZE, L.G.

Designing free supported slanting shells. Trudy Inst.stroi. dela AN Gruz.SSR. 7:253-264 '59. (MIRA 13:5)
(Elastic plates and shells)

MUKHADZE, I. G.

Analysis of sloping shells by the strip method using a complex function. Soob. AN Gruz. SSR 22 no.3:313-319 Mr '59.
(MIRA 12:8)

1.AN GruzSSR Institut stroitel'nogo dela, Tbilisi.Predsedatel' deloneskorrespondentom AN O.D. Oniashvili.
(Elastic plates and shells)

MUKHADZE, L. G. Cand Tech Sci — (dissertation) "Concerning the calculation of sloping casings by means of zones with the aid of a complex function," Tbilisi, 1960, 11 pp, 150 cop. (Georgian Polytechnical Institute im V. I. Lenin) (KL, 42-60, 114)

ZAVRIYEV, K.S.; MUKHADZE, L.G.; LORDKIPANIDZE, R.S., red.; BOKUCHAVA, T.P., red.izd-va; DZHAPARIDZE, N.A., tekhn. red.

[Design of round arches of constant cross section] Raschet krugovykh arok postoiannogo secheniia. Tbilisi, Izd-vo Akad. nauk Gruzinskoi SSR, 1962. 70 p. (MIRA 16:5)
(Arches)

L 16880-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/EWA(h) Pf-4/Peb ASD(f)-2/
ACCESSION NR: AR4045237 AFTC(p) EM S/0124/64/000/007/V009/V010

SOURCE: Ref. zh. Mekhanika, Abs. 7V72

AUTHOR: Mukhadze, L. G.

TITLE: The analysis of a cylindrical shell 26

CITED SOURCE: Tr. In-ta stroit. mekhan. i seysmostoykosti. AN GruzSSR, v. 9, 1963, 45-50

TOPIC TAGS: cylindrical shell, tapered shell, isotropic shell, shell bending strength

TRANSLATION: The article discusses the bending of a cylindrical isotropic shell. A system of two differential equations from V. Z. Vlasov's theory of tapered shells is reduced to a single equation with respect to a new complex function, from which the shift function and stress function are found as real and imaginary parts. A solution is given for a tapered cylindrical shell under specific boundary conditions and different load arrangements. Various approaches to the solution of the problem are analyzed. The article is in Georgian with a Russian summary. [illegible]

[illegible]

MUKHADZE, M. G.

"Temperature Stresses in Thin Plates." Cand Tech Sci, Georgian Polytechnic Inst imeni S. M. Kirov, 20 Dec 54. (ZV, 9 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556 24 Jun 54

124-57-2-2199

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 105 (USSR)

AUTHOR: Mukhadze, M.

TITLE: The Flexure of a Hinge-attached Plate of Rectangular Contour Under the Action of Temperature (Izgib sharnirno zakreplennoy plity pryamougol'nogo ochertaniya pod deystviyem temperatury) (in Georgian, Russian Resumé)

PERIODICAL: Tr. Gruz. politekhn. in-ta, 1955, Nr 4, pp 99-102

ABSTRACT: The deflections of a hinge-supported rectangular plate under the action of a linear temperature distribution through the thickness of the plate are determined. The problem is solved by means of the variational method. The deflection function has the form of the product of two functions, each of which depends on but a single coordinate; one of these is given in advance to satisfy the parallel-ends boundary condition, while the other one is found from the condition that it render minimal the functional which leads to a differential equation for the determination of the unknown function for the given boundary conditions along the other ends. Then, employing again Euler's equation, the author refines the initially given function by using the previously determined function as the known function. B. F. Karavanov

Card 1/1

1. Sheets--Deflection 2. Sheets--Temperature factors

124-57-2-2198

Translation from: Referativnyy zhurnal, Mekhanika, 1957 Nr 2, p 105 (USSR)

AUTHOR: Mukhadze M.

TITLE: The Flexure of Hinge-supported Plates of Circular or Lemniscate Contour Under the Action of Temperature (Izgib sharnirno opertykh plit kruglogo i lemniskatnogo ochertaniya pod deystviyem temperatury) (in Georgian)

PERIODICAL: Tr. Gruz. politekhn. in-ta, 1955, Nr 4, pp 109-112

ABSTRACT: Formulas are derived for the determination of the deflection of an arbitrary point of hinge-supported plates having a circular or lemniscate contour; the method of a complex variable is employed. Tables are set up for the computation of the deflection.

Reviewer's name not given

1. Sheets--Deflection 2 Sheets--Temperature factors

Card 1/1

MUKHADZE, M.G.; TORDIYA, M.V.

Changes in the blood coagulation system in anaphylactic shock. Trudy Inst. eksp. i klin. khir. i gemat., AN Gruz. SSR 11:163-167 '61. (MIRA 17:8)

DEKHTYAR, I.Ya. [Dekhtiar, I.IA.]; MUKHALENKOV, V.S. [Mykhalenkov, V.S.]

Atomic mobility during high-temperature axial compression of ferrite-type alloys [with summary in English]. Ukr.fiz.zhur. 3 no.4:516-520 Jl-Ag '58. (MIRA 11:12)
(Iron alloys--Metallography) (Diffusion)

CHEBURKOV, Yu.A.; MUKHAMADALIYEV, N.; KNUNYANTS, I.L.

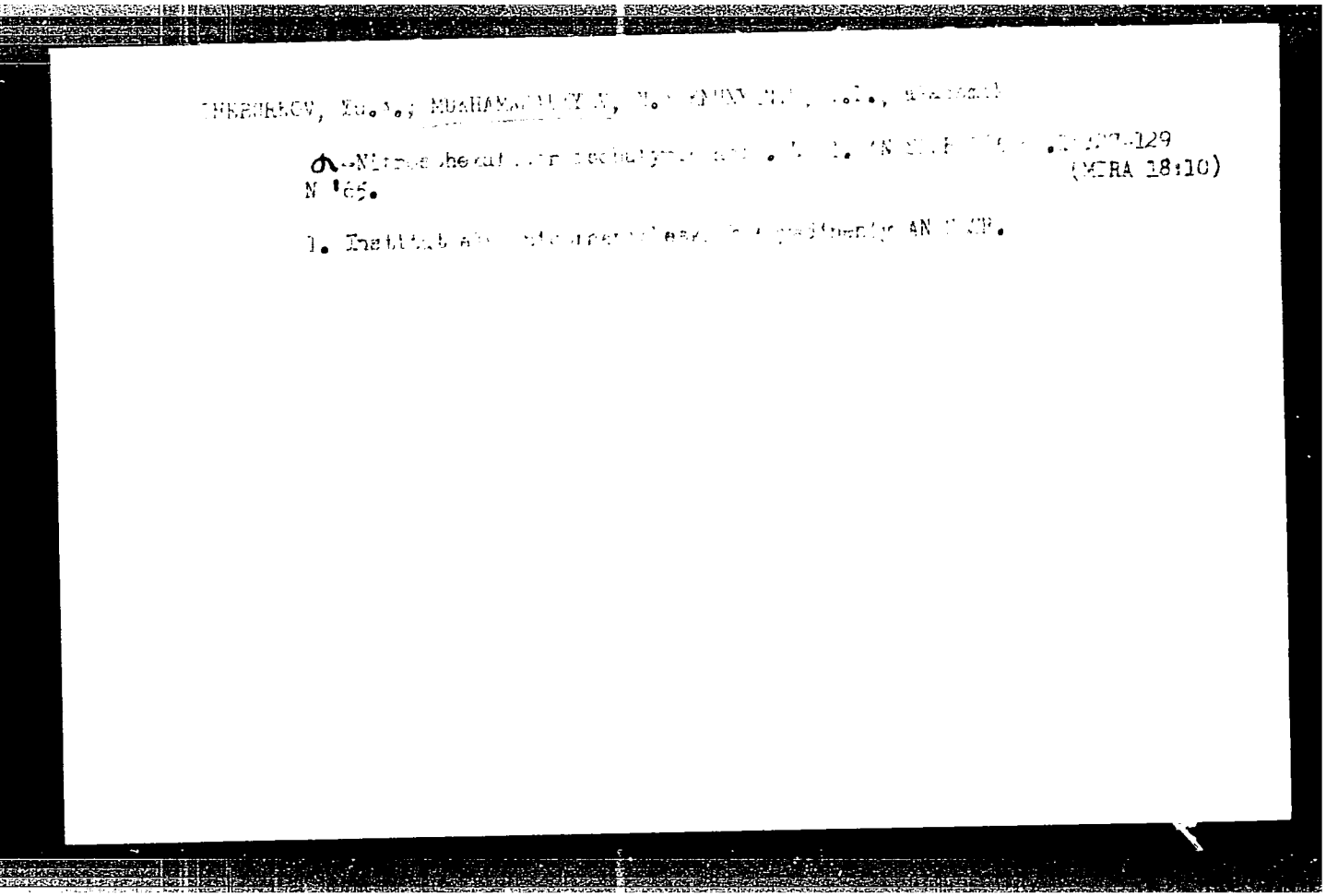
Reaction of hexafluoroisobutyryl fluoride with acid chlorides.
Izv. AN SSSR. Ser. khim. no.8:1476-1478 '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

CHEBURKOV, Yu.A.; MUKHAMADALIYEV, N.; ARONOV, Yu.Ye.; KNUNYANTS, I.L.

Reaction of perfluorodimethylketene with dimethylformamide.
Izv. AN SSSR. Ser. khim. no.8:1478-1480 '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



MUKHAMADEYEVA, G.G.

Development history of school gardening in Omsk Province.
Izv. Omsk. otd. Geog. ob-va no.5:185-187 '63.
(MIRA 17:5)

ACC NR: AP7006027 SOURCE CODE: UR/0062/66/000/007/1265/1267

AUTHOR: Cheburkov, Yu. A.; Mukhamadaliyev, N.; Mirzabekyants, N. S.; Knunyants, I. L.

ORG: Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Reactions of perfluorodimethylketene with alcohols, amines, and acids

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1966, 1265-1267

TOPIC TAGS: fluorinated organic compound, amine, alcohol, glycerin

ABSTRACT: The reactions of perflourodimethylketene with alcohols, amines, and acids were studied. These reactions are common both to perfluorodimethylketene and to nonfluorinated ketenes and lead to the production of various derivatives of hexafluoroisobutyric acid. The reaction with alcohols yielded esters. In the case of glycerin, at room temperature ketene alkylated only two hydroxy groups, either vicinal or terminal. Complete acylation was achieved only by heating the glycerin with excess perfluorodimethylketene in a sealed tube. The reactions of ketene with ammonia and amines yielded amides of hexafluoroisobutyric acid. In these reactions an excess of amines must be avoided to prevent mineralization of the fluorine atoms by splitting off hydrogen fluoride. Perfluorodimethylketne reacted readily with hydrogen chloride or bromide and with organic acids, yielding acid halides, anhydrides, and mixed anhydrides. The structures of the the new compounds were confirmed by infrared and nuclear magnetic resonance spectra. Orig. art. has: 4 formulas and 1 table. [JPRS: 38,967]

SUB CODE: 07 / SUBM DATE: 14Dec65 / ORIG REF: 009

Card 1/1 UDC: 542.91 + 547.233 + 547.26 + 541.452 + 546.16

0427 0812

MUKHAMADALIYEV, N.; CHEBURKOV, Yu.A.; KNUNYANTS, I.L.

Perfluorodimethylketene. Report No.6: Reaction with derivatives of nitrous acid. Izv. AN SSSR. Ser. khim. no.11 1982-1987 '65. (MIRA 18:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

MUKHAMEDAMINOV, R. A.

Raising the water resistance of gypsum by using local cements and hydraulic additives. Sbor. nauch. trud. NII po stroi. ASiA no.2:114-118 '61. (MIRA 16:1)

(Gypsum)

MUKHAMEDAMINOV, R.A.

Some physicomechanical properties of gypsum cement pozzolan keramzit concrete. Sbor. nauch. trud. NII po stroi. ASiA no.46 92-97 '63. (MIRA 17:8)

A L 11607-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6001863 SOURCE CODE: UR/0190/65/007/012/2067/2072

AUTHORS: Mukhamed Abdel'monoym El' Asmirli; Korshak, V. V.; Sergeyev, V. A.

ORG: Moscow Chemical-Technological Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut); Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: On the autocatalytic nature of the anionic polymerization process of ε-caprolactam with alkali salts

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2067-2072

TOPIC TAGS: polymer, polymerization, catalytic polymerization, polymerization catalyst, heat of polymerization, polymerization kinetics, amine, alkali

ABSTRACT: The catalytic anionic polymerization of ε-caprolactam (KL) in the presence of the sodium salt of KL or N,N'-isophthaloyl-bis-ε-caprolactam was studied to extend the currently available information on the properties of poly-ε-caprolactam. The change in temperature during polymerization, the yield of polymer, and the specific viscosity of the reaction mixture as a function of the initial temperature of reaction were determined. Experimental results are shown in tables and graphs (see Fig. 1), and a polymerization mechanism is proposed. It was found that the polymers obtained during the anionic polymerization of ε-caprolactam

Card 1/2 UDC: 66.095.26+678.675

L 11607-66

ACC NR: AP6001863

Fig. 1. Change in the temperature of the reaction mixture during polymerization. Initial temperatures: 1 - 160; 2 - 130.

catalyze the polymerization of ε-caprolactam, so that the polymerization is autocatalytic. Orig. art. has: 2 tables, 4 graphs, and 8 equations.

SUB CODE: 07,11/ SUBM DATE: 07Jan65/ ORIG REF: 008/ [illegible] / OTH REF: 006

Card 1/2

MINKEVICH, B.I.; MUKHAMEDAMINOV, R.A.

Polyacrylamide retards the hardening of structural gypsum. Sbor.nauch. trud.TashNIIS no.5:116-118 '63. (MIRA 18:1)

MUKHAMEDEYEV, M M
page 6

6 (2) SOV/111-59-10-2/23

AUTHOR: None Given

TITLE: For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers' Union)

PERIODICAL: Vestnik svyazi, 1959, Nr 10, pp 1-5 (USSR)

ABSTRACT: This lead article is a condensed report on the work of the fourth plenary session of the Central Committee of the Communications, Auto Transport and Highway Workers' Union which took place in Moscow. The Plenary Session discussed reports by the Ministry of Communications of the USSR, the Ministry of Auto Transport and Highways of the RSFSR, Glavdorstroy of the Ministry of Transport Construction of the USSR, and the chairman of the CC of the Trade Union on the results of the June Plenary Session of the CC of the CPSU and the tasks of trade union organizations in supporting socialist competition. Material from the report of K.Ya. Sergeychuk, deputy minister of communications of the USSR, is first dealt with. This report deals with the question of increasing labor pro-

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For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers' Union)

ductivity and the related problems of introducing extensive automation and mechanization; labor productivity tasks in the communications industry are largely being fulfilled, he stated. Some of the work done in the field of automation and mechanization are reviewed, and the economy resulting from such work is noted. The report also notes deficiencies in the implementation of assignments for development of communications facilities, particularly in respect to automation and mechanization in the industry. It is reported that in accordance with the decisions of the June Plenary Session of the CC of the CPSU the Ministry of Communications of the USSR has worked out concrete measures on automation and mechanization of production processes in the communications industry; some of the intended goals, within the framework of the seven-year plan, are outlined in this connection. The deputy minister dwelled at length on the problem of the fulfillment and overfulfillment of plans by communications en-

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terprises and measures to aid in this work; mentioned in this connection is Valentina Gaganova. The article gives an account of a report by B.G. Romanov, chairman of the Central Committee of the Trade Union, on the role of the trade unions in implementation of the decisions of the June Plenary Session of the CC of the CPSU. Cited for outstanding achievements are communications workers collectives of the Nikolayev and Chernovtsy oblasts, the Central Telegraph Office of the USSR, the Minsk Post Office and the Kiyev Inter-city Telephone Station (MTS). however, it is stated, there are still many backward sections, including the rayon communications offices in the Irkutsk oblast', none of which fulfilled their obligations for the first half year, and those in the Orlov oblast', only 21 out of 30 of which fulfilled their plans; deficiencies in the Vinnitsa oblast' are also mentioned. The most important task of the union committees, states the report, is to draw all collectives into socialist

For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers' Union)

competition for early fulfillment of the seven-year plan, briefly discussed. Stressing the role of mechanization in the industry, the report outlines mechanization work currently in progress in a number of enterprises: in the Krasnodar kray, in addition to existing mechanization facilities at the Post Office, in the Postal Transport Section (OPP) and in the Sochi communications office. lifters are being installed in the Maykop, Tuapse and Apsheron communications offices; the conversion to semi-automatic equipment in the Armavir, Maykop and Lazarevskoye telegraph offices will be completed this year; this will include installation of the latest phototelegraphic apparatus; in the Krasnodar radio centre the control room of the repeater station is being converted to automatic control; 22 intra-rayon (VRS) ATSs over and above the plan level are being set up in the VRS systems. The report also discussed the role of the trade union organi-

For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto-Transport and Highway Workers' Union)

zations in automation and mechanization, as well as in the fields of labor protection and safety. It is reported that in accordance with a decision of the praesidium of the VTsSPS reports by and elections of permanent production conferences are now being conducted. The Praesidium of the CC of the Trade Union has worked out practical measures for the successful implementation of the decisions of the June Plenary Session of the CC of the CPSU, outlined by the author, and including the following: the summoning, together with the NTO and the scientific-research institutes, of conferences in Moscow, Leningrad and Kiyev, devoted to the introduction of mechanization facilities and their economic effect. The balance of the article is devoted to a report on the discussion of reports at the Plenary Session of the CC of the Trade Union, in which 20 persons took part. V.A. Voronov, brigade leader in the maintenance shop of the Central Telegraph Office of the USSR, spoke of the work and successes of his

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brigade, which, following the example of V. Gaganova, he has left for a backward brigade; also mentioned is Ivanov, technician. M.M. Mukhamedeyev, chairman of the Kazakh republic Trade Union Committee, reported on measures for implementation of the decisions of the June Plenary Session of the CC of the CPSU projected by the republic committee; in his opinion the Ministry of Communications of the USSR must give much attention to official motor transport, its equipment and proper use. S. Niyazov, chairman of the Tadzhik republik Trade Union Committee, spoke on socialist competition in the republic and the decision for early fulfillment of the 1959 plan, to put the television centre in Stalinabad and the TV relay unit in Leninabad in operation this year, and finish construction of the Stalinabad ATS in 1964; also mentioned is Kalmykov, brigade leader of the SMUR. R.N. Polyakova, chairman of the mestkom (local trade union committee) of the OPP at the Kursk RR station in

For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers Union)

Moscow, spoke of mechanization and organization of work at the OPP. A.A. Kazakovtseva, chairman of the Belorussian republic Trade Union Committee, spoke on activities in connection with socialist competition in the BSSR; she reported that oblast' conferences of experts and inventors, as well as meetings of the chairmen of permanent production conferences, were to be held this year for the purpose of pooling experience. B F Anasovich, chief of the TsNIIS, reported on the work of the institute on new communications techniques, specifically a communications system on coaxial and balanced cables, modernization of 24-channel apparatus, a system of multiplexing radio-relay lines, and the use of transistors in communications equipment; he noted that the KR-60 apparatus was awarded a prize at the Brussels Exposition; the institute has developed new equipment for telegraphic, phototelegraphic and inter-city telephone communications. G.N. Smirnov, chief of the Moscow Post

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Office, spoke on post office work, and mechanization at the Moscow P.O.; without the help of TsNIIS, the TsKB and the Main Postal Administration of the Ministry of Communications of the USSR, he said, the problem of complex mechanization of the Post Office cannot be solved - much remains to be done in this respect. He also mentioned Panferova, cashier at the Kiyev RR station (Moscow). K.S. Birulis, deputy minister of communications of the Lithuanian SSR, spoke on several aspects of communications work in Lithuania; by 1961, he said, telephone communication between Vilnius and Kaunas should be automated, and by the end of the seven-year plan 40 50% of the republic's communications facilities should be automated; automation of up to 92% of municipal telephone stations (GTS) can be achieved two years earlier than envisaged in the seven-year plan; a sufficient quantity of multiplexing equipment must be manufactured by GUMTTS; he noted that conversion of GTS equipment in

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For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers' Union)

Vilnius and Kaunas was necessary to adapt it for use with rural ATS equipment; VChR apparatus, for radiofication of villages, was also converted. A.K. Churenkov, chairman of the Moscow Municipal Trade Union Committee, spoke of increased obligations taken on by leading collectives of the Central Telegraph Office of the USSR, the TsMTS (Central Inter-city Telephone Station), the Moskovskaya direktsiya radiosvyazi i radioveshchaniya (Moscow Radio Communications and Broadcasting Board), the Moskovskoye upravleniye perevozki pochty (Moscow Postal Transport Administration) and the Zavod TsKB (TsKB Works); mentioned are Voronov, Karelina, and Raskatayeva, brigade leaders of the Central Telegraph Office. The work of the Moscow Post Office and particularly Smirnov, chief of the Post Office, is criticised. L.I. Yusupov, deputy minister of communications of the RSFSR, spoke of the necessity for improving the preparation of machine operator cadres, and for the TsNIIS to speed up development of mechanization and automation

For Persistent Implementation of the Decisions of the June Plenary Session of the CC of the CPSU (At the IV Plenary Session of the CC of the Communications, Auto Transport and Highway Workers' Union)

facilities; also dealt with is the role of experts in improving existing techniques, as well as organization of work in communications enterprises; he notes that at present socialist competition of enterprise collectives within the RSFSR is being organized. A.I. Shevchenko, secretary of the VTsSPS, Ya.D. Faradzhev chairman of the Dagestanskiy obkom profsoyuza (Dagestan Oblast' Trade Union Committee), I.M. Shchetinin, chairman of the Chita Oblast' Trade Union Committee, and L.G. Stolyarov, deputy chairman of the NTORiE imeni A.S. Popov, also spoke at the session. The Plenary Session of the CC of the Trade Union adopted a resolution putting forward concrete tasks for the implementation of the decisions of the June Plenary Session of the CC of the CPSU and the II Plenary Session of the VTsSPS, and furthering socialist competition for early fulfillment of the Seven Year Plan.

Card 10/10

MUKHAMEDIYEV, M.

Let us prepare for the coming Plenum of the Central Committee of the CPSU in a proper manner. Avt.transp. 37 no.11:3-4 N '59. (MIRA 13:2)

1. Predsedatel' Kazakhskogo respublikanskogo komiteta profsoyuza rabotnikov svyazi, rabochikh avtomobil'nogo transporta i shosseynykh dorog.
(Kazakhstan--Transportation, Automotive)

MUKHAMEDEYEV, M.

Attention to the needs of man is the main thing. Avt. transp. 38 no.8:5-6 Ag '60. (MIRA 13:8)

1. Predsedatel' Kazakhskogo respublikanskogo komiteta profsoyuza rabotnikov svyazi, rabochikh avtotransporta i shosseynykh dorog.
(Kazakhstan--Transportation, Automotive)

L 52321-65 EEC(b)-2/EWG(r)/EEC(k)-2/EWA(h)/EWA(k)/EWP(k)/EWT(1)/EEC(t)/FBD/T/EWA(m)-2 Pf-4/Pl-4/Pl-4/Pm-4/Pn-4/Po-4/Peb IJP(c) WG

ACCESSION NR: AP5013667 UR/0386/65/001/001/0022/0026

AUTHOR: Mukhamedgaliyeva, A. F.; Orayevskiy, A. N.; Strakhovskiy, G. M. 60 59 B

TITLE: Maser with two series resonators and a "molecular rin," amplifier 25

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 1, 1965, 22-26

TOPIC TAGS: maser, two beam maser, molecular ringing, maser line width

ABSTRACT: A maser was investigated with two cascaded cavities and with two colliding beams, one cavity acting as generator and the other as amplifier, with an aim of checking the possibility of obtaining in this system a narrower spectral emission line than in a single-cavity maser. A schematic diagram is shown in Fig. 1 of the Enclosure. The system dimensions were l = 23 mm (length of each cavity) and L = 140 mm (distance between cavity ends). The beam of molecules, first polarized in one of the resonators, excites in the second resonator oscillations of the same frequency as in the first ("molecular ringing"). This "ringing" is amplified by the opposing intense beam of molecules. To attain approximate equality of the incoming and outgoing particles the intensity of the beam

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ACCESSION NR: AP5013667

amplifying the "molecular ringing" is made several times larger than the intensity of the beam producing the generation. The line narrowing in such a system can be estimated from the decrease of the slope of the plot of the change of generation frequency vs. resonator frequency deviation. The expected line narrowing should have been 10—12, but since the losses of beam intensity in the gap between cavities were not fully compensated for, a much smaller narrowing was obtained. The test results are shown in Fig. 2 of the Enclosure and indicate that as the cavity in which generation takes place is detuned the system frequency does not vary continuously over the entire detuning range. The jumps in frequency can be attributed to the fact that in this system there should be, besides a principal maximum at the molecular-transition frequency, two secondary maxima differing in frequency by approximately 1/T from the principal maximum. If the line has such a shape, then jumps of frequency and amplitudes should be observed in the generation mode. Orig. art. has: 2 figures. [02]

ASSOCIATION: Fizicheskiy institut Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 12Feb64 ENCL: 02 SUB CODE: EC

NO REF SOV: 002 OTHER: 003 ATD PRESS: 4009

Card 2/4

L 52321-65

ACCESSION NR: AP5013667

ENCLOSURE: 01

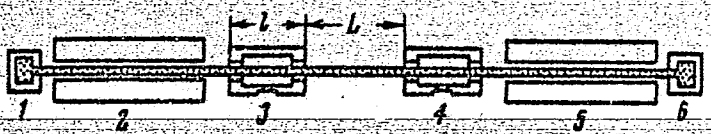


Fig. 1. Schematic diagram of two-cavity two-beam maser:

1, 6 - Molecular beam sources; 2,5 - sorting systems;
3, 4 - cavities.

Card 3/4

L 52321-65

ENCLOSURE: 02

ACCESSION NR: AP5014667

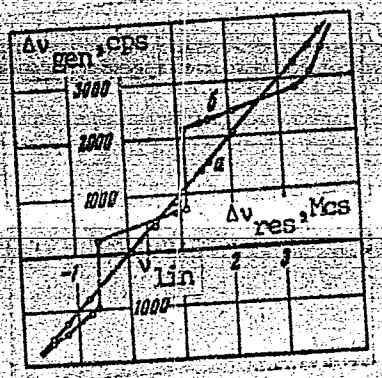


Fig. 1. Dependence of the generation frequency on the cavity frequency deviation: a - in a single-cavity maser, b- in a cavity with a "molecular ringing" amplifier.

Card 4/4 mvB

MUKHAMEDGALIYEV, F.M., akademik

Farming practices in Kazakhstan. Zemledelie 8 no.2:14-19 F '60. (MIRA 13:5)

1. President Kazakhskoy akademii sel'skokhozyaystvennykh nauk.
(Kazakhstan--Agriculture)

L 41759-66 FBD/EWT(1)/EEC(k)-2/T/EWP(k) IJP(c) WG

ACC NR: AP6011915 SOURCE CODE: UR/0141/66/009/002/0302/0307

AUTHOR: Mukhamedgaliyeva, A. F.; Orayevskiy, A. N.; Strakhovskiy, G. M. 53

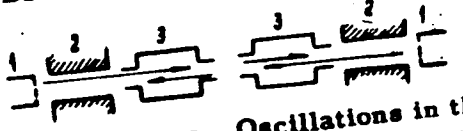
ORG: Institute of Physics, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Investigation of a maser with "molecular-ringing" amplifier 25

SOURCE: IVUZ. Radiofizika, v. 9, no. 2, 1966, 302-307

TOPIC TAGS: maser, molecular generator, molecular ringing, LINE NARROWING

ABSTRACT: An experimental investigation is reported of a maser (see figure) with two series resonators and two opposing beams; one resonator functioned as a generator, the other, as an amplifier. In the figure: 1 - sources of molecular beams, 2 - sorting systems, 3 - resonators. Oscillations in the above maser were calculated for far-from-saturation operating conditions; the generation frequency was assumed to be close to the molecular-transition frequency. In the experimental model, the resonator length was 2.3 cm, distance between the resonators, 16 cm. Experimental curves of:



UDC: 621.378.33

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L 41759-66

ACC NR: AP6011915

generation frequency and amplitude vs. tuning of the generating resonator (at pressures 0.3, 1, 1.5 torr in the amplifying-beam source); generation frequency vs. tuning of the amplifying resonator (at the same pressures) are shown. The experimental characteristics have two frequency and amplitude jumps which are explained by two additional side maxima frequency-spaced from the principal maximum by $1.2\,T^{-1}$; the generation between the jumps takes place on different peaks of the Ramsey curve. It is found that the line width in the above system is 1/5 to 1/4 that of a single-resonator maser. Orig. art. has: 4 figures and 3 formulas.

SUB CODE: 20 / SUBM DATE: 10Aug65 / ORIG REF: 004 / OTH REF: 003

Card 2/2

L 41613-66 EEC(k)-2/EWP(k)/EWT(1)/FBD/T IJP(c) WG

ACC NR: AP6014252 SOURCE CODE: UR/0109/66/011/005/0943/0943

53
B

AUTHOR: Mukhamedgaliyeva, A. F.; Strakhovskiy, G. M.

ORG: none

TITLE: Effect of the coupling between resonator and vacuum-envelope upon the maser-frequency stability

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 943

TOPIC TAGS: maser, molecular generator, molecular ringing, FREQUENCY STABILITY

ABSTRACT: Experiments have shown that the vacuum envelope of a maser acts as a second (external) resonator and causes a "molecular ringing" affecting the maser frequency stability. This short note suggests that, in order to ensure high frequency stability, the maser must be equippped with two series-connected resonators, of which the first resonator must have no side ports. In the single-resonator case, the envelope Q-factor must be kept low by using suitable materials and coatings. Orig. art. has: no figures, no formulas, no tables.

SUB CODE: 20 / SUBM DATE: 11Aug65 / ORIG REF: 001 / OTH REF: 001

UDC: 621.378.33

Card 1/1

[redacted], P. A.

"Biomorphology of the Respiratory System of Mammals." Thesis for degree of Dr. Biological Sci. Sub 18 Mar 49, Moscow Veterinary Academy.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

MUKHAMEDOALIYEV, F.M.

Some problems in breed morphology. Trudy Inst.morf.zhiv. no.31: 117-123 '60. (MIRA 13:6)

1. Institut eksperimental'noy biologii Akademii nauk Kazakhskoy SSR.

(Sheep breeds)

MUKHAMEDGALIYEV, F.M.; RAZOZNAYEV, K.M.

Use of heterosis in animal husbandry. Izv. AN Kazakh. Ser. biol. nauk no. 3:14-20 '63. (MIRA 17:9)

MUKHAMEDGALIYEV, F.M.

Some laws governing the individual development of farm animals and problems of higher fertility and efficient rearing of young animals. Trudy Inst. eksp. biol. AN Kazakh. SSR. 1:3-9 '64.
(MIRA 18:4)

MUKHAMEDGALIYEV, F.M.; MATVIYENKO, V.F.; LEBEDEVA, N.G.

Skeletal age-related changes in Kazakh fine-wool sheep. Trudy Inst. eksp. biol. AN Kazakh. SSR. 1:10-53 '64. (MIRA 18:4)

MUKHAMEDGALIYEV, F.M.

Trends in breeding activities of the sheep farmers of the Republic. Izv. AN Kazakh. SSR. Ser. biol. nauk 2 no.1:99-100 Ja-F '64. (MIRA 17:6)

MUKHAMEDGALIYEV, F.M.

Problems of molecular biology and genetics. Trudy Inst. eksp. biol. AN Kazakh. SSR 11:3-9 '65.

(MIRA 18:10)

MUKHAMEDGALIYEV, F.M.

Problems of modern genetics. Vest. AN Kazakh. SSR 21 no.9; 3-9 S '65. (MIRA 18:9)

1. Chlen-korrespondent AN Kazakhskoy SSR.

MUKHAMEDGALIYEV, K.M.

Leaching and drainage in the reclamation of saline lands.
Vest. AN Kazakh. SSR 18 no.10:89-90 O '62. (MIRA 17:9

MUKHAMEDGALIYEV, K.M.

Characteristics of flooded meadow soils on the Tendyk State Farm of Gur'yev Province. Izv. AN Kazakh. SSR. Ser. biol. nauk. 2 no.2:42-52 Mr-Ap '64 (MIRA 18:2)

MUKHAMEDGALIYEVA, A.F.; ORAYEVSKIY, A.N.; STRAKHOVSKIY, G.M.

Molecular generator with two series resonators and an amplifier of "molecular sound." Pis'. v red. Zhur. eksper. i teor. fiz. 1 no.1:22-26 Ap '65. (MIRA 18:9)

1. Fizicheskiy institut AN SSSR.

MUKHAMEDGALIYEVA, A.F.; STRAKHOVSKIY, G.M.

Molecular generator with two series resonators on two opposing beams. Izv. vys. ucheb. zav.; radiofiz. 8 no.4:824-826 '65. (MIRA 18:9)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.

27612

S/141/61/004/002/004/017
E032/E314

AUTHORS: Mukhamedgaliyeva, A.F. and Khohklov, R.V.

TITLE: On the Stability of Oscillations in a Molecular Generator (Maser)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1961, Vol. 4, No. 2, pp. 259 - 262

TEXT: The theory of a maser can be set up with the aid of the polarisation function P defining the density function D . These two functions are defined by

$$P(x, t) = p\,(e^{i\omega t} C_{12} + e^{-i\omega t} C_{21});$$

$$D(x, t) = C_{22} - C_{11},$$

where $C_{ik}(x, t)$ are the elements of the density matrix,
p is the dipole moment and
ω_o is the transition frequency.

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When a field of the form $\varepsilon = E(t)\cos\left[\omega_0 t + \varphi(t)\right]$ is applied, the approximate expressions for P and D are shown by Lyubimov and Khokhlov (Ref. 8) to be of the form

$$\frac{\partial D}{\partial \eta_1} = \frac{1}{2hv} E(\eta_1) P_1;$$

$$\frac{\partial P_1}{\partial \eta_1} = \varphi'(\eta_1) P_2 - \frac{p^2}{2hv} E(\eta) D; \qquad (1)$$

$$\frac{\partial P_2}{\partial \eta} = \varphi'(\eta_1) P_1$$

These are subject to the boundary conditions $D = B(v)$, $P_1 = P_2 = 0$ when $\eta = -\zeta$ and $\zeta = x - vt$, $\eta = x + vt$ and P_1 and P_2 are the active and reactive components of the polarisation. In addition to the set of equations (1),

On the Stability of ....

non-stationary processes are described by a further two differential equations for slowly varying field amplitudes and phases. However, in most cases, these differential equations can be approximately reduced to the algebraic equations

$$-(\omega_o/2Q)E - 2\pi\omega_o\bar{P}_1 = 0; \quad \Delta - 2\pi\omega_o\bar{P}_2/E = 0 \qquad (2)$$

where $\Delta = \omega_{res} - \omega_o$ and P_1 and P_2 are averaged over x and over v. Substituting Eq. (2) into Eq. (1), one obtains a set of three integro-differential equations. These equations are then applied to the case of a beam of molecules, all having the same velocity. In the neighbourhood of the steady state

$$E(t) = E_o + \varepsilon e^{\lambda t}; \quad \delta = \dot{\varphi}(t) = \delta_o + \vartheta e^{\lambda t}$$

where ε and ϑ are first-order quantities, as compared

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On the Stability of ....

with steady-state values of E_o and δ_o. The polarisation functions can be written down in the form

$$P_1 = P_1^o + p_1 e^{\lambda t}; \quad P_2 = P_2^o + p_2 e^{\lambda t},$$

where p_1 and p_2 are small deviations from the steady state. It can be shown that ε and ϑ are given by

$$\varepsilon = -4\pi Q\bar{p}; \quad \theta = \frac{\omega_0}{2Q}\frac{1}{\bar{P}_1^{0^2}}(\bar{P}_1^0\bar{p}_2 - \bar{P}_2^0\bar{p}_1).$$

The set of equations has a non-trivial solution when the corresponding determinant is equal to zero, in which case we have the following equation in $\Lambda = \lambda/2v$

$$Y_5\Lambda^5 + Y_4\Lambda^4 + Y_3\Lambda^3 + Y_2\Lambda^2 + Y_1\Lambda + Y_0 +$$
$$+ e^{-2\Lambda L}(y_3\Lambda^3 + y_2\Lambda^2 + y_1\Lambda + y_0) + e^{-4\Lambda L}(z_1\Lambda + z_0) = 0,$$

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On the Stability of ....

where Y_n, y_n and z_n are functions of E_o, δ_o, ε and ϑ.
A positive root is obtained when

$$|Y_5\Lambda^5 + Y_4\Lambda^4 + Y_3\Lambda^3 + Y_2\Lambda^2 + Y_1\Lambda + Y_0 + e^{-4\Lambda L}(z_1\Lambda + z_0)|'' > \\ > |e^{-2\Lambda L}(y_3\Lambda^3 + y_2\Lambda^2 + y_1\Lambda + y_0)|''.$$

This inequality can be used to establish the boundaries of the instability region. This analysis is then extended in a qualitative way to the case when there is a velocity distribution. It is concluded that if this velocity spread in the molecular beam is not large, then there are regions of parameter values in which instability sets in. The instability disappears in the case of a large velocity spread. There are 2 figures and 8 Soviet references.

4

Card 5/6

27612

S/141/61/004/002/004/017
E032/E314

On the Stability of ....

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: September 29, 1959

Card 6/6

YEFIMOV, V.V.; FERANIDI, K.I.; MUKHAMEDIN, S.

Boring bit with three nonradially arranged cutting edges. Gor. zhur. no.5:73 My '65. (MIRA 18:5)

1. Karagandinskiy nauchno-issledovatel'skiy ugol'nyy institut.

GEL'FAND, F.M., inzh.; MARKMAN, L.D., inzh.; MUKHAMEDIN, S., tekhnik; MIKHAYLYUK, V.N., tekhnik

The RPM-2 bit for the rotary boring of holes in rocks. Shakht. stroi. 5 no. 3:12-14 Mr '61. (MIRA 14:2)

1. Karagandinskiy nauchno-issledovatel'skiy ugol'nyy institut.
(Boring machinery)

MUKHAMEDIN,S.; FERANIDI, K.I.

Sharpening RPM-2g bits for use in rocks of various hardness.
Nauch. trudy KNIUI no.13:341-344 '64 (MIRA 18:1)

YEFIMOV, V.V.; FERANIDI, K.I.; MUKHAMEDIN, S.

Stand testing of a new design of bit with broken line edges for the impact drilling of holes. Nauch. trudy KNIUI no.14:234-239 '64.
(MIRA 18:4)

MUKHAMEDIYAROV, G.Z., dotsent

Chen-chiu therapy of some skin diseases. Kaz. med. zhur. no.1:54-56 Ja-F '62. (MIRA 15:3)

1. Kafedra kozhnykh i venericheskikh bolezney (zav. - prof. Ya.D. Pechnikov) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni Lenina.

(SKIN--DISEASES)
(ACUPUNCTURE)

MUKHAMEDIYEV, A.A.

Plant lice (Homoptera, Aphididae) of the Fergana Valley. Uzb. biol. zhur. 8 no.4:64-66 '64. (MIRA 18:7)

1. Institut zoologii i parazitologii AN UzSSR.

MUKHAMEDIYEV, A.M.

Tropical and subtropical species of crustaceans (Entomostraca, Cladocera) from the North Tajikistan rice fields. Dokl.AN Tadzh. SSR no.17:25-29 '56. (MLRA 9:11)

1. Zoologicheskiy institut Akademii nauk SSSR.
(Tajikistan--Cladocera)

MUKHAMEDIYEV, A.M.

Biological productivity of rice fields of Uzbekistan. Trudy probl.i tem.sov. no.1:82-84 '51. (MLRA 9:7)
(Uzbekistan--Fresh-water biology) (Uzbekistan--Rice)

MUKHAMEDIYEV, A.M.

Material on the ecology of tropical and subtropical species of Cladocera. Izv.AN Uz.SSR. Ser.biol.nauk no.1:67-78 '57.
(MIRA 13:6)

(WATER FLEAS)

MUKHAMEDIYEV, A. M. Doc Biol Sci -- (diss) "Hydrobiology of the reservoirs of the Ferǎgana Valley and the importance of hydrobiological factorss in the raising of rice yields." Len, 1958. 26 pp (Zoological Inst of the Acad Sci USSR), 200 copies. List of author's works at end of text (KL, 14-58, 111)

MUKHAMEDIYEV, A.M.

Importance of hydrobiological factors in rice cultivation and of carp culture in increasing the rice yield. Izv.Otd. est.nauk AN Tadzh.SSR no.2:25-40 '59. (MIRA 13:4)

1. Fergansky pedagogicheskiy institut.
(Rice) (Carp)

MUKHAMEDIYEV, A.M.

New water flea species (Cladocera, Crustacea) from rice fields of the Fergana Valley. Uzb. biol. zhur. no.3:35-38 '60. (MIRA 13:7)

1. Fergansky gosudarstvennyy pedagogicheskiy institut.
(FERGANA--WATER FLEAS)

MUKHAMEDIYEV, A.M.

New species of water fleas (Crustacea, Cladocera) from the bodies of water of the Fergana Valley. Uzb.biol.zhur. 7 no.2:78-82'63. (MIrA 16:8)

1. Ferganskiy gosudarstvennyy pedagogicheskiy institut.
(FERGANA—CLADOCERA)

MUKHAMEDIYEV, G.

Progressive worker formed by the collective. Neftianik 7 no.11:21 N '62. (MIRA 16:6)

(No subject headings)

BARON, L.I. (Moskva); MUKHAMEDIYEV, P.A. (Moskva)

Phenomenon of the "work hardening" of rocks. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.1:201-203 Ja-F '63. (MIRA 16:3)
(Rocks--Testing)

MUKHAMEDIYEV, R.I., dotsent, kandidat biologicheskikh nauk.

Urea production function of the liver in hyperthermia. Biul.SAGU no.28:105-125 '49. (MLRA 9:5)

(Urea) (Liver)

MUKHAMEDIYEVA, F.D.

Materials on the biology of the Transcaspian Varicorhinus capoeta heratensis (keyserling) in the Tedzhen Reservoir. Nauch. dokl. vys. shkoly; biol. nauki no.1:23-28 '62.(MIRA 15:3)

1. Rekomendovana kafedroy zoologii Turkmenskogo gosudarstvennogo universiteta im. A.M. Gor'kogo.
(TEDZHEN RESERVOIR--CARP)

MUKHAMEDIYEVA, G.

Tuymazy petroleum workers. Neftianik 9 no.9:10-11 S '64
(MIRA 18:2)

MUKHAMEDKHANOV, D.

32562. Povysit' uroven' raboty s selskokhozyaystvennymi kadrami Sots. sel. Khoz-vo Uzbekistana, 1949, No. 3, s. 64-70

SO: Letopis' Zhurnal'nykh Statey, Vol. 44, Moskva, 1949

MUKHAMEDKHANOV, S.; BONDARENKO, M.N., red.; SALAKHUTDINOVA, A., tekhn. red.

[Chemical method for increasing cotton yields] Khimicheskii sposob povysheniia urozhaia khlopka. Tashkent, Gosizdat UzSSR, 1962. 33 p. (MIRA 16:5)
(Uzbekistan--Cotton growing) (Growth promoting substances)

MUKHAMEDKHANOVA, R.

All-Union colloquium on probability theory held at Fergana.
Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 6 no.6:118 '62. (MIRA 16:2)
(Mathematics--Congresses)
(Probabilities)

ACCESSION NR: AR4039854 S/0044/64/000/004/V010/V010

SOURCE: Ref. zh. Matematika, Abs. 4V43

AUTHOR: Mukhamedkhanova, R.

TITLE: A more precise limit theorem in the theory of branching random processes.

CITED SOURCE: Tr. In-ta matem. AN UzSSR, vy*p. 22, 1961, 111-120

TOPIC TAGS: limit theorem, branching random process, theory, asymptotic expansion, factorial moment

TRANSLATION: In the scheme of branching random processes, homogeneous in time (continuous time), with one type of particle, an asymptotic expansion is developed for the probability of the non-degenerate process Q(t), in powers of $e^{a_1 t}$, under the assumptions that a sufficient number of factorial moments a_k exist, that the first factorial moment a_1 is negative, and that $t \to \infty$. V. Zolotarev

DATE ACQ: 15May64 SUB CODE: MA ENCL: 00

Card 1/1

MUKHAMEDKULOV, M., Candidate Biol Sci (diss) -- "The acclimatization and cultivation of nutria in Uzbekistan". Tashkent, 1959. 21 pp (Inst of Zoology and Parasitology of the Acad Sci Uzbek SSR), 175 copies (KL, No 24, 1959, 132)

MUKHAMEDKULOV, M.

Coypu in Tashkent Province. Uzb.biol.zhur. no.1:55-58 '59.
(MIRA 12:7)

1. Institut zoologii i parazitologii AN UzSSR.
(Tashkent Province--Coypu)

MUKHAMEDKULOV, M.

Data on the eating habits of the coypu in Tashkent Province. (MIRA 12:4)
Dokl.AN UzSSR no.1:57-59 '59.

1. Institut zoologii i parazitologii AN UzSSR. Predstavleno akademikom AN UzSSR T.Z.Zakhidovym.
(Tashkent Province—Coypu)

ACC NR: AP7001170 (A,N) SOURCE CODE: UR/0439/66/045/007/1111/1112

AUTHOR: Mukhamedkulov, M. M.

ORG: Institute of Zoology and Parasitology, AN Uz SSR , Tashkent (Institut zoologii i parazitologii AN Uzbekskoy SSR)

TITLE: Distribution of mouse species in the Surkhan river basin

SOURCE: Zoologicheskiy zhurnal, v. 45, no. 7, 1966, 1111-1112

TOPIC TAGS: zoogeography, rodent, mouse, zoology, Biologic Ecology

ABSTRACT: Data on the distribution of rodents in the Surkhan river basin of southern Uzbekistan were collected between 1960 and 1962. The following species were observed: *Ochotona rutila, Allactaga severtsovi, Allactaga elater, Alactagulus acontion, Rattus turkestanus, Nesokia indica, Mus musculus, Apodemus sylvaticus, Cricetulus migratorius, Rhombomys opimus, Meriones tamariscinus, Meriones meridi-*

Card 1/2 UDC: 599.323.4(575.1):591.9

ACC NR: AP7001170

anus, Meriones erythrourus, Alticola argentatus, Microtus arvalis, Microtus carruthersi, Microtus afghanus, and Ellobius talpinus. These species are desert and foothill dwellers. Specimens of *Apodemus sylvaticus* and *Mus musculus* were found at altitudes over 3000 m. All species were widely distributed within the area studies. [LP]

[WA-50; CBE No. 14]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004

Card 2/2

MUKHAMEDNAZAROVA, O.M.

Polarographic determination of nitrites in sausages. Izv. AN Mold. SSR no.10:61-66 '62. (MIRA 17:12)

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520011-2

MUKHAMEDOV, A.A., Cand Tech Sci--(diss) "Study [illegible] [illegible] [illegible] and wear ~~depletion~~ of [illegible] [illegible] [illegible] [illegible] [illegible] in [illegible] [illegible]." Tashkent, 195[illegible]. 1[illegible] [illegible] [illegible] (Min of Higher Education USSR. Central Asian Polytechnic Inst), 110 copies (KL,49-5[illegible], 12[illegible])

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520011-2"

MUKHAMEDOV, A.A.

Sulfurization of friction surfaces. Izv. AN Uz. SSR. Ser. tekh. nauk no.5:87-94 '58. (MIRA 11:12)

1.Sredneaziatskiy politekhnicheskiy institut.
(Hard facing)

22327

S/167/61/000/001/004/004
A104/A133

18 8200 also 1583, 1418

AUTHORS: Mukhamedov, A.A.; Mikhaylov, M.M.

TITLE: Selecting an expedient sulfidization method

PERIODICAL: Izvestiya Akademii nauk. UzSSR. Seriya tekhnicheskikh nauk, no. 1, 1961, 67 - 73

TEXT: The authors reviewing investigations carried out on this problem cite Ref. 1 (V.V. Kostkin, P.I. Gorezko, P.A. Mishin and Ya.S. Buraya: "Sulfidization of Friction Surfaces", ITEIN AS USSR, 13, M., 1954); Reference 2 (A.G. Livshits, F.Z. Skvortsov and A.V. Tiratsuyan, "Sel'khozmashinostroyeniye", 1958, 7); Reference 4 (D.A. Draygor, "Vestnik mashinostroyeniya", 1958, 2); and Reference 5 (L.Yu. Pruzhanskiy, "Vestnik mashinostroyeniya", 1958, 9) according to which sulfidization increases mainly the antifriction properties of the friction surfaces, whereas according to Reference 3 [Sh.I. Preygerzon, N.Y. Yanchenko and A.P. Voytikova, "Mashinostroitel' Belorussii, 1 (2), Minsk, 1956], the wear-resistance remains the same or decreases according to Reference 9 (Ye.P. Nadeinskaya, "Machines and Instruments", 1955, 2). The purpose of this study is to investigate the wear-resistance and antifriction properties of sulfidized surfaces by elucidating their properties and the effect of acids on the basic material.

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22327

S/167/61/000/001/004/004
A104/A133

Selecting an expedient sulfidization method

Tests of sulfide coatings carried out with pure ferrous sulfide or mixed with 10% potassium ferrocyanide at 800°C showed high antifriction properties, whereas the wear-resistance did not increase. Sulfidization of steels and cast irons of pearlitic structure showed a higher wear-resistance and sulfidization in cyanide media increased the strength of the sulfide coatings and the antifriction characteristics. Tests were performed by V.A. Mirbayev on sintered and calibrated carbide specimens of 40 mm in diameter and 23.8 - 24.6% porosity. One group was sulfidized as described above and the second group was annealed in the same furnace in cast iron shavings. The annealed specimens were used to eliminate the effect of structural changes at 800°C on the test results. The second part of the friction couple was a bush made of "50" steel subjected to low hardening (R_c = 55 - 57) at a pressure of 10 kg/cm^2 and a sliding velocity of 0.608 m/sec. The tests showed that the abrasion of sulfidized carbide surfaces, caused by dry friction, is analogous to that of calibrated and annealed surfaces. This is a proof that sulfide coatings show antifriction properties only if the basic material has antifriction properties, e.g., in the case of ferro-graphite ceramets. For some tests kerosene was used as lubricant and the sliding velocity was increased to 0.985 m/sec. The abrasion of sulfidized and non-sulfidized surfaces proved almost identical. As most media contain a considerable quantity of cyanide components, the

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Selecting an...

process should be appropriately called sulfocyaniding. It has been stated by L. Marshall and S. I. Mansell (Ref. 11, "Reduction of Friction and Wear of Steels by Surface Sulfidization", Mashinostroyeniye, Collection of translation and reviews of foreign news, 1957, 1) that the effectiveness of this method is based on the dual character of the coating. This theory was investigated in the course of developing sulfocyaniding conditions in solid media. Specimens of 45X (45 Kh) steel were processed for 4 hours in a mixture of 40% ferrous sulfide, 36% carburizer, and 24% potassium ferrocyanide at 850°C. Control specimens were processed in a mixture of 60% carburizer and 40% potassium ferrocyanide, at the same pressure and sliding velocity as in previous test. The carburizer contained 80% charcoal and 20% barium carbonate. Specimens of pearlitic structure showed good results. Sulfur possesses a very low solubility in iron and produces brittle FeS and FeS_2 compounds. Sulfur saturated carbon steel shows a reduced amount of carbon along the periphery. Tests with these or other carbon compounds were carried out at 800, 930 and 1,000°C for 3 - 4 hours. Sulfocementation proved impossible because sulfur pinches the γ-zone which reduces the solubility of carbon in the iron and explains its displacement at high temperatures. For these reasons substances containing nitrogen are added. Compounds of 40% ferrous sulfide, 50% carburizer and 10% potassium ferrocyanide revealed at 800 - 900°C a hypoeutectoid

Card 3/5

22327
S/167/61/000/001/004/004
A104/A133

Selecting an...

ponents prevent oxidation and accelerate the sulfidization but do not increase the wear-resistance. There are 4 figures and 12 Soviet-bloc references.

Card 5/5

S/145/61/000/010/001/008
D221/D304

AUTHORS: Mukhamedov, A. A., Candidate of Technical Sciences, Lezov, A. P., Senior Scientific Worker, Vinnik T.D., Senior Lecturer, and Rudyuk S. I., Aspirant

TITLE: The effect of sulphiding on the wear resistance and antifrictional characteristics of friction surfaces

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroy-enie, no. 10, 1961, 37-44

TEXT: The article describes the results of investigations carried out on the wear resistance of grey cast iron, steel and metal-ceramics. Various conditions of sulphiding, such as temperature and media were kept identical in all cases. The experiments were carried valve pairs. The spools were made of 12XH3A (12KhN3A) steel, ХГСА (30KhGSA) and 40Х (40Kh) steel, the sleeve of 30KhGSA steel. Parts of valves were subject to sulphiding after grinding. These made of 30KhGSA and 40Kh steel were treated in an ENIMS bath of 72% $K_4Fe(CN)_6$, 10% $Na_2S_2O_3$ and 18% of NaOH. During wear tests the

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